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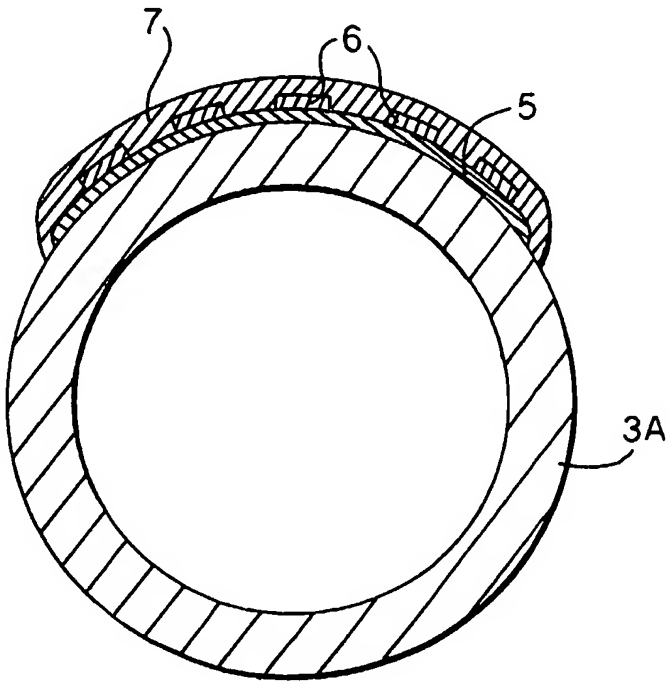
(54) Title: ELECTRICAL TRANSMISSION SYSTEM



(57) Abstract: A system for the transmission of electrical energy between different parts of an electrically conductive structure, and in particular for transmission of power and/or data signals to/from downhole equipment or instrumentation in oil and gas wells. A first layer of electrically insulative ceramic material (5) is deposited on the structure (e.g. oil pipe string 3A), followed by a series of electrically conductive tracks (6) and a second layer of electrically insulative ceramic material (7).The tracks (6) which serve for the transmission of power and/or data signals are thus sandwiched between the layers (5 and 7), insulated from the structure (3A) and the external environment and protected from damage. Each layer(5, 6 and 7) is deposited by a thermal spray process such as plasma spraying or high velocity oxy fuel spraying.

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